

Cycle view of the study programme

		B1	Or	Th	Pr	Au	Cr
Focus compulsory courses (B2 : 30Cr)							
AESS1222-1	<i>Special didactics in physics : course and exercises (1st part)</i> - Hervé CAPS, Maryse HOEBEKE Corequisite : PHYS0979-1 - Approche conceptuelle de la physique de base	B2	Q1	40	-	-	3
AESS1223-1	<i>Special didactics in physics : placements (1st part)</i> - <i>Observation placements</i> - Hervé CAPS, Maryse HOEBEKE - [10h Internship] - <i>Teaching placements</i> - Hervé CAPS, Maryse HOEBEKE - [20h Internship] - <i>Reflexive practical work</i> - Hervé CAPS, Maryse HOEBEKE Corequisite : PHYS0979-1 - Approche conceptuelle de la physique de base	B2	Q1	-	-	[+]	3
AESS2222-1	<i>Special didactics in physics : course and exercises (2nd part)</i> - Hervé CAPS, Maryse HOEBEKE	B2	Q2	35	-	-	4
AESS2223-1	<i>Special didactics in physics : placements (2nd part)</i> - <i>Teaching placements</i> - Hervé CAPS, Maryse HOEBEKE - [20h Internship] - <i>Reflexive practical work</i> - Hervé CAPS, Maryse HOEBEKE - <i>Extra-scholar teaching activities</i> - Hervé CAPS, Maryse HOEBEKE	B2	Q2	-	-	[+]	5
AESS0202-1	<i>General didactics: course and exercises ; observation placements ; reflexive practices</i> - Annick FAGNANT - [10h Internship]	B2	TA	30	10	[+]	4
AESS0246-1	<i>Analysis of scholastic institutions and educational policies</i> - Annelise VOISIN	B2	Q2	15	-	-	1
AESS0004-1	<i>Media education</i> - Jeremy HAMERS	B2	Q1	15	-	-	1
AESS0248-1	<i>Elements of sociology of education</i> - JeanFrançois GUILLAUME	B2	Q2	10	-	-	1
AESS0140-1	<i>Professional ethics and training to neutrality and citizenship</i> - Anne HERLA	B2	Q2	25	-	-	2
AESS0143-1	<i>Educational Psychology of adolescents and young adults</i> - Annick FAGNANT	B2	Q1	15	-	-	2
AESS0249-1	<i>Interdisciplinary seminar</i> - Annick FAGNANT	B2	Q2	15	-	-	1
AESS0339-1	<i>Understand and manage the diversity of public schools</i> - Ariane BAYE	B2	TA	10	15	-	3
Core curriculum compulsory courses (B1 : 15Cr, B2 : 18Cr)							
PHYS0974-1	<i>Materials physics and biophysics</i> - Maryse HOEBEKE, Alejandro SILHANEK	B1	Q1	30	-	-	5
PHYS0930-1	<i>Atomic physics</i> - Thierry BASTIN, Peter SCHLAGHECK	B1	Q1	30	-	-	5
PHYS0975-1	<i>Introduction to soft matter and complex systems</i> - Nicolas VANDEWALLE	B1	Q1	30	-	-	5
SMEM0028-1	<i>Final thesis</i> - COLLÉGIALITÉ	B2	TA	-	-	-	18
Common core courses (B1 : 45Cr, B2 : 12Cr)							
In agreement with the Jury, choose a subject among : (B1 : 45Cr, B2 : 12Cr)							
Basic course (B1 : 45Cr, B2 : 12Cr)							
SSTG0016-1	<i>Training sessions and personal work (english language)</i> - COLLÉGIALITÉ, ISLV	B1	Q2	15	45	-	5
PHYS0983-1	<i>Seminars in advanced physics I (english language)</i> - <i>Materials physics and biophysics</i> - COLLÉGIALITÉ - <i>Atomic physics</i> - COLLÉGIALITÉ	B1	TA	10	-	-	4

	- <i>Physics of soft matter and complex systems</i> - COLLÉGIALITÉ	10	-	-		
PHYS0984-1	<i>Seminars in advanced physics II</i> (english language)	B2	TA			4
	- <i>Materials physics and biophysics</i> - COLLÉGIALITÉ	10	-	-		
	- <i>Atomic physics</i> - COLLÉGIALITÉ	10	-	-		
	- <i>Physics of soft matter and complex systems</i> - COLLÉGIALITÉ	10	-	-		
	Prerequisite : PHYS0983-1 - Séminaires de Physique avancée I					

Choose courses in agreement with the jury for a total of 44 credits from among: (B1 : 36Cr, B2 : 8Cr)

Atomic and nuclear

PHYS0932-1	<i>Cold atoms and atomic clocks</i> - Thierry BASTIN	-	Q2	20	10	-	4
	Corequisite : PHYS0930-1 - Physique atomique						
PHYS2027-2	<i>Ultracold atoms and Bose-Einstein condensates</i> - Peter SCHLAGHECK	-	Q2	25	-	-	4
	Corequisite : PHYS0930-1 - Physique atomique PHYS3021-1 - Mécanique quantique avancée						
PHYS0235-2	<i>Quantum optics</i> - John MARTIN	-	Q2	20	10	-	4
	Corequisite : PHYS0930-1 - Physique atomique PHYS3021-1 - Mécanique quantique avancée						
PHYS0949-1	<i>Atomic structures modelling</i> - Pascal QUINET	-	Q2	10	10	-	4
	Corequisite : PHYS0930-1 - Physique atomique						
PHYS0941-2	<i>Theoretical physics : Nuclei and particles</i> - JeanRené CUDELL	-	Q1	30	-	-	4
PHYS3021-1	<i>Advanced quantum mechanics</i> - Thierry BASTIN, John MARTIN, Peter SCHLAGHECK	-	Q1	30	-	-	4
PHYS0997-1	<i>Quantum information and computation</i> (english language) - François DAMANET	-	Q1	30	-	-	4
PHYS3136-1	<i>Open quantum systems</i> (english language) - François DAMANET, John MARTIN - [10h Proj.]	-	Q2	20	-	[+]	4
	Corequisite : PHYS3021-1 - Mécanique quantique avancée PHYS0235-2 - Optique quantique						

Soft Materials / Statistical Physics

PHYS0969-1	<i>Introduction to biophotonics</i> - Laurent DREESEN	-	Q2	20	10	-	4
PHYS0939-2	<i>Physics of non-linearities, chaos and fractals</i> - Nicolas VANDEWALLE	-	Q2	15	15	-	4
	Corequisite : PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes						
PHYS3020-1	<i>Discrete element method and soft materials</i> - Eric OPSOMER - [15h Proj.]	-	Q2	20	-	[+]	4
PHYS0948-1	<i>Microgravity</i> - Martial NOIRHOMME, Nicolas VANDEWALLE - [3d FW]	B2	Q2	10	20	[+]	4
	Corequisite : PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes						

Materials / Solid State

PHYS3003-1	<i>Physics of functional oxides</i> (english language) - Philippe GHOSEZ	-	Q1	20	10	-	4
	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique						
PHYS3004-1	<i>Physics of nanomaterials</i> (english language) - JeanYves RATY	-	Q2	20	10	-	4

	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique								
PHYS3023-1	<i>Physics of magnetic materials</i> (english language) - Eric BOUSQUET	-	Q2	20	10	-			4
	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique								
PHYS0981-1	<i>Quantum modelling of materials properties</i> (english language) - Philippe GHOSEZ	-	Q1	20	10	-			4
	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique								
CHIM0202-2	<i>Physical Chemistry</i> - Christian DAMBLON, Bernard LEYH	-	Q2	30	-	-			4
PHYS0987-1	<i>Physics of materials for energy</i> (english language) - Ngoc Duy NGUYEN - [15h Proj.]	-	Q1	20	-		[+]		4
PHYS0988-1	<i>Intrinsic and induced topological properties of matter</i> (english language) - Bertrand DUPÉ	-	Q2	20	10	-			4
Quantum Physics and Relativity									
PHYS2012-1	<i>Relativistic quantum mechanics and relativistic statistics</i> - Peter SCHLAGHECK	-	Q1	20	5	-			4
SPAT0012-1	<i>General relativity</i> (english language) - Guillaume MAHLER	-	Q1	30	10	-			4
Experimental Physics									
PHYS0250-2	<i>Experimental statistical physics</i> - Stéphane DORBOLO	-	Q2	10	20	-			4
	Corequisite : PHYS0975-1 - Introduction à la matière molle et aux systèmes complexes								
PHYS3019-1	<i>Techniques of experimental physics</i> - Geoffroy LUMAY	-	Q2	20	20	-			4
PHYS0943-1	<i>Spectroscopy of electronic paramagnetic resonance</i> - Maryse HOEBEKE	-	Q2	15	15	-			4
	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique								
PHYS0095-1	<i>The physics of accelerators and vacuum technologies</i> - David STRIVAY	-	Q2	10	10	-			4
PHYS0968-1	<i>Signal processing</i> - Alejandro SILHANEK	-	Q2	25	20	-			4
PHYS3037-1	<i>Nanofabrication : principles and techniques</i> (english language) - Ngoc Duy NGUYEN, Alejandro SILHANEK	-	Q2	25	15	-			4
	Corequisite : PHYS0974-1 - Physique des matériaux et biophysique								
PHYS0999-1	<i>Digital creation in sciences</i> - Roland BILLEN, Valentin FISCHER, Pierre MATHONET, JeanChristophe MONBALIU, Eric PARMENTIER, Nicolas VANDEWALLE - [30h Proj.]	-	TA	10	-		[+]		5
Optics and Imaging									
PHYS0942-3	<i>Ionising radiations and imaging</i> - Alain SERET	-	Q1	20	5	-			4
PHYS0938-1	<i>Physics and cultural heritage</i> - David STRIVAY	-	Q1	15	5	-			4
PHYS0048-2	<i>Coherent and incoherent optics</i> (english language) - <i>Coherent optics and lasers applications</i> - Serge HABRAKEN - <i>Laser physics</i> - Serge HABRAKEN	-	Q1	10 5	15 5	- -			4
PHYS0048-3	<i>Coherent and incoherent optics, Instrumental optics I</i> (english language) - Serge HABRAKEN	-	Q1	20	15	-			4
PHYS0128-1	<i>Magnetic Resonance Imaging - the Basics</i> (english language) - Laurent LAMALLE - [3d FW]	-	Q1	15	-		[+]		2
PHYS0125-3	<i>Instrumental optics II</i> (english language) - Serge HABRAKEN	B2	Q2	25	15	-			4

Prerequisite :

PHYS0048-3 - Coherent and incoherent optics

Applied physics

INFO0939-1	<i>High performance scientific computing</i> (english language) - Christophe GEUZAINÉ - [20h Proj.]	-	Q1	30	15	[+]	5
MECA0470-1	<i>New methods in computational mechanics and physics</i> (english language) - Maarten ARNST, Eric BÉCHET, Ludovic NOELS - [40h Proj.]	-	Q2	20	-	[+]	5
ELEN0062-1	<i>Introduction to machine learning</i> (english language) - Pierre GEURTS, Louis WEHENKEL - [40h Proj.]	-	Q1	30	5	[+]	6

Didactics

PHYS0979-1	<i>Conceptual approach to basic physics</i> - Hervé CAPS, Maryse HOEBEKE	-	Q1	30	-	-	4
AESS0241-1	<i>Introduction to physics didactics</i> - Maryse HOEBEKE	-	Q1	20	-	-	4

[...] Up to 20 credits (or more, in agreement with the Jury) in the two blocks may also be chosen in another study field or institution

Course Medical Physics (B1 : 45Cr, B2 : 12Cr)

PHYS0952-3	<i>Imaging through ionising radiation</i> - Alain SERET Corequisite : PHYS0990-1 - Dosimétrie PHYS0989-1 - Radiobiology	B1	Q1	25	5	-	4
PHYS0989-1	<i>Radiobiology</i> (english language) - Olivier VAN HOEY Corequisite : PHYS0990-1 - Dosimétrie PHYS0952-3 - Imagerie par radiations ionisantes	B1	Q2	10	-	-	2
PHYS0990-1	<i>Dosimetry</i> - Véronique BAART, Luca PELLEGRINI Corequisite : PHYS0989-1 - Radiobiology PHYS0952-3 - Imagerie par radiations ionisantes	B1	Q2	20	-	-	3
RADI2001-1	<i>Radioprotection: hygiene problems</i> - Nadia WITHOFS Corequisite : PHYS0990-1 - Dosimétrie PHYS0989-1 - Radiobiology RADP0141-1 - Radioprotection BIOL0007-1 - Biologie tissulaire PHYS0952-3 - Imagerie par radiations ionisantes	B1	Q1	15	-	-	2
BIOL0007-1	<i>Tissue biology</i> - Marc THIRY	B1	Q1	15	25	-	4
PHYL0644-1	<i>Human Anatomy and Physiology</i> - Valérie DEFAWEUX	B1	Q2	30	-	-	3
ANAT0222-1	<i>Elements of Radiology</i> - Paul MEUNIER, Luaba TSHIBANDA, Christophe VALKENBORGH	B1	Q1	10	5	-	2
CHIM0620-1	<i>Radiopharmaceutical Chemistry</i> - Thibault GENDRON	B1	Q1	20	10	-	3
PHYS0128-1	<i>Magnetic Resonance Imaging - the Basics</i> (english language) - Laurent LAMALLE - [3d FW] Corequisite : PHYS0930-1 - Physique atomique	B1	Q1	15	-	[+]	2
RADP0141-1	<i>Radioprotection</i> - Part a) Radioprotection techniques and complements - Véra PIRLET - Part b) Legislation on radioprotection and the organisation of a radiotherapy, radiodiagnostic and nuclear medicine department - Véra PIRLET	B1	Q2	30	15	-	6

SSTG0041-1	<i>Placement in medical radiophysics</i> - Véronique BAART, Claire BERNARD, Alain SERET - [12d Internship] Corequisite : PHYS0990-1 - Dosimétrie PHYS0989-1 - Radiobiology PHYS0952-3 - Imagerie par radiations ionisantes	B1	Q2	2	-	[+]	7
STAT0420-1	<i>Biostatistics 2</i> - AnneFrançoise DONNEAU	B1	Q1	15	15	-	3
PHYS0968-1	<i>Signal processing</i> - Alejandro SILHANEK	B1	Q2	25	20	-	4
QUAL0722-1	<i>Safety and quality assurance</i> (english language) - Edmond STERPIN Prerequisite : SSTG0041-1 - Stages en radiophysique médicale	B2	Q2	5	10	-	2
RADL0442-1	<i>Radiobiology and radiopathology elements</i> - Chantal HUMBLET Prerequisite : BIOL0007-1 - Biologie tissulaire PHYL0644-1 - Anatomie et physiologie humaines ANAT0222-1 - Eléments d'anatomie radiologique	B2	Q1	40	20	-	6
PHYS2024-1	<i>Transfer and co-registration of medical images</i> - Mohamed Ali BAHRI	B2	Q1	15	-	-	2
CHIM0621-2	<i>Production and application of radioelements</i> - Thibault GENDRON - [3d FW]	B2	Q2	15	-	[+]	2

Bridging courses (max 15-60 credits) Master in physics (120 credits)

Optional courses (B0 : 60Cr)

The update course, worth a maximum of 60 credits, will be determined based on students' prior training. (B0 : 60Cr)

[...] Between 15 and 60 ECTS of courses from "Bachelier en sciences physiques"